

The organic sector has been undergoing a national assessment of research priorities. While a full assessment is not yet complete, preliminary results of the research needs assessment have identified the following priorities that can help inform applications to [Organic Science Cluster III](#), as a supplement to the [Letter of Intent Guidelines for Researchers](#).

1. Increasing **competitiveness** through improvements in productivity, production stability and resiliency with climate extremes and/or quality of product, including:

- Breeding - Developing/identifying crop cultivars and livestock that are: adapted to regional organic management, resilient to pest pressure, adapted to use nutrients/feed efficiently
- Pest (disease and insect) management strategies - with an emphasis on prevention and cultural strategies, for:
 - o livestock (e.g. mastitis, lameness, external/internal parasites, etc.),
 - o horticultural crops (e.g. apple scab, blight, rots, nematodes, powdery mildew, wireworm, spotted wing drosophila, Colorado potato beetle, flea beetle, thrips, etc.),
 - o cereals and pulse crops (e.g. fusarium head blight, seedling blight, root diseases, white mold, etc.)
- Weed management strategies - cultural and mechanical practices for organic field and horticultural crops with emphasis on perennial weeds (e.g. Canada thistle, field bindweed); impacts and alternatives for plastic mulch use in horticulture
- Cropping systems strategies – cover crops and green manures, intercropping, development of climate resilient systems, greenhouse systems
- Soils, including –
 - o effects of management practices on the form and quantity of soil organic matter,
 - o practices to improve soil health; linking soil health with productivity, product quality and ecosystem services (e.g. clean air, clean water, water storage, etc.),
 - o improved soil fertility management with crop rotation and soil amendments
- Livestock feed - Alternative feed sources to reduce grain/concentrate use, including food waste, forages, insect protein; improved pasture management to maintain productivity and quality of feed while maintaining or improving biodiversity
- Improving quality of organic products
 - o improved nutritional value through management practices and cultivar selection,
 - o evaluating and improving grain cleaning and storage practices
- Development and application of new technologies to support organic production systems – including soil amendments (local resources/waste recycling), equipment, pesticides
- Assessment of GE contamination risks to organic production systems, evaluating the effectiveness of mitigation practices and development of improved practices

2. Advancing **public good** through characterization and improvement of:

- Agroecosystem function – nutrient cycling and movement, carbon life cycle and energy use analysis (whole system)
 - o carbon balance of organic production systems in Canada
- Ecosystem services – carbon sequestration, soil health, biodiversity, and pollination
 - o soil health in tillage-based systems
 - o using buffer zones to boost biodiversity – costs, impacts
- Nutritional benefits of organic.
- **Note: Characterization of the environmental impacts of organic systems is a high priority, and is encouraged to be included as a component of all research projects as appropriate**

3. Supporting organic sector **evolution** through:

- Assessments of the sustainability of organic agriculture production systems and practices to improve sustainability
- Application of holistic principles to find solutions that close nutrient/energy cycles - integration of crops and livestock, recycling of waste by-products (especially local/regional waste)
- Improvement of animal welfare – optimizing outdoor access and housing